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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,794	07/30/2003	Zhangyuan Yang	37137-191300	9411
26694	7590	11/01/2006	EXAMINER	
VENABLE LLP P.O. BOX 34385 WASHINGTON, DC 20043-9998			TU, JULIA P	
			ART UNIT	PAPER NUMBER
			2611	

DATE MAILED: 11/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/629,794	<b>Applicant(s)</b> YANG ET AL.	
	<b>Examiner</b> Julia P. Tu	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on July 30, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 9-11 is/are rejected.
- 7) ☒ Claim(s) 4-8, 12-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The disclosure is objected to because of the following informalities: The examiner suggests to change "f0" to "fc"; "f1" to "f0"; "f2" to "f1" to incorporate with the drawing figure 1.

Appropriate correction is required.

### ***Claim Objections***

3. Claims 1, 9, and 12 are objected to because of the following informalities. The examiner suggests to change the following:

(1) in claim 1:

"said defined number at least two" to "said defined number is at least two" on line

- 4.

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(2) in claim 9:

"said special defined frequencies" to "said special defined pulse frequencies" on line 6.

(3) in claim 10:

"a interface" to "an interface" on line 3.

"the voltage level transfer circuit" to " a voltage level transfer circuit" on line 4.

"said two special frequencies" to "said two special defined pulse frequencies" on lines 7.

"the input two said special voltage levels" to "an input of said special voltage levels" on line 8.

(4) in claim 11:

"dividing the said the sequence of pulse groups" to "dividing said sequence of pulse groups" on line 3.

(5) in claim 12:

"a interface" to "an interface" on line 9.

Appropriate correction is required.

4. Claims 4-8, 13-19 are objected to under 37 CFR 1.75(c) as being in improper form because claim 4 depends on claims 1 and claim 2. See MPEP § 608.01(n). Accordingly, the claim 4 and its dependent claims have not been further treated on the merits.

***Claim Rejections - 35 USC § 101***

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-3 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1 and 2 recites binary digits coding and decoding which direct to a signal which is not considered to be statutory subject matter since it is not either process, machine, manufacture, or composition of matter.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph because claim 1 recites the limitations "the sequence of pulse groups" in lines 1-2, and "the two pulse groups" in lines 2-3. There is insufficient antecedent basis for those limitations in the claim.

8. Claims 1-3 provide for the use of a binary digits coding method and binary decoding method but, since the claims do not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a method without any active, positive steps delimiting how this method is actually practiced.

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Claims 1-3 are rejected under 35 U.S.C. 101 because the claimed recitation of a method, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

### ***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-3 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Crimmins et al. (US 6, 181, 255).

(1) with regard to claim 1:

As shown in figure 9, Crimmins et al. disclose the binary digits are corresponding to the sequence of pulse groups (figures 9A and 9B), and the binary digit "0" and "1" is corresponding to the two pulse groups with two special defined pulse frequencies respectively and have the same defined number of pulses, the defined number at least two (figures 9A and 9B, note the number of pulses is 12).

(2) with regard to claim 2:

Crimmins et al. further teach the sequence of pulse groups are divided according to the defined number (figures 9A and 9B, note the number of pulses is 12); the duration time of pulse groups are measured (figures 9A and 9B; note the duration time of the first pulse group in figure 9A is 1.6ms, and the duration time of the second pulse group in figure 9B is 1.62ms); and the pulse groups are corresponding to the binary digits "0" or "1" according to the different duration time of the pulse groups (note the first pulse group in figure 9A corresponding to the binary digit "0" and the second pulse group in figure 9B corresponding to the binary digit "1").

(3) with regard to claim 3:

Crimmins et al. further teach the duration time of the pulse group is the total time of the period time of the all the pulses in the group (see figures 9A and 9B; note 1.6ms is the duration time of the first pulse group and 1.62ms is the duration time of the second pulse group).

(9) with regard to claim 9:

Crimmins et al. further teach a coding module used for convert the binary digits into a sequence of pulse groups in which the digits "0" and "1" are corresponding to the pulse groups consist of same defined number of pulses and with two special defined frequencies (figures 9A and 9B; note the first pulse group in figure 9A corresponds to binary digit "0" and the second pulse group in figure 9B corresponds to binary digit "1"); the pulse groups consist of same defined number of pulses and the defined number is at least 2 (note the defined number is 12).

(11) with regard to claim 11:

Crimmins et al. further teach a decoding module for dividing the sequence of pulse groups into the pulse groups according to the defined number and for measuring the duration time of each pulse group and then converting the duration time differences into binary digits "0" or "1" (figures 9A and 9B; note the first pulse group in figure 9A corresponds to binary digit "0" and the second pulse group in figure 9B corresponds to binary digit "1").

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crimmins et al. (US 6,181,255) in view of Crowley (4,374,438).

(1) with regard to claim 10:

Crimmins et al. disclose all of the subject matter in claim 9 above except for an interface, for converting the transmitting digits into serial signals and sending the binary digits logical levels to the voltage level transfer circuit; a voltage level transfer circuit, for transferring the binary logical levels into two special voltage levels; a voltage/frequency converter, generating the pulses with said two special frequencies according to the input

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two said special voltage levels; a binary counter, for counting the pulses generated by the voltage/frequency converter, and as the said defined number of pulses is counted it controls interface to output the next digit bit.

However, Crowley disclose a interface (block 113 in figure 1), for converting the transmitting digits into serial signals and sending the binary digits logical levels to the voltage level transfer circuit (blocks 101 in figure 1);

a voltage level transfer circuit (block 101: phase detector in figure 1), for transferring the binary logical levels into two special voltage levels;

a voltage/frequency converter (block 102 in figure 1), generating the pulses with said two special frequencies according to the input two said special voltage levels;

a binary counter (block 103 in figure 1), for counting the pulses generated by the voltage/frequency converter, and as the said defined number of pulses is counted it controls interface to output the next digit bit.

One skilled in the art would have recognized that including the coding circuit to execute the coding method. Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to include the coding circuit as taught by Crowley to the method as taught by Crimmins et al. to provide an improved, jitter-free system (column 2, lines 25-27) as well as to provide better communication system.

***Allowable Subject Matter***

Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten (1) in independent form including all of the limitations of the base claim and any intervening claims and (2) to overcome the objections set forth in the section of claim objections of this office action.

The following is a statement of reasons for the indication of allowable subject matter: Claim 12 recites a binary counter, for counting the pulses in the sequence of pulse groups, as the defined number of pulses is reached, it controls a pulse group duration time measurement unit to measure the pulse group duration time and the pulse group duration time measurement unit measured the duration time of the pulse groups and output "low" or "high" voltage levels according to the difference of the duration time of the pulse groups for expressing the binary digits "0" or "1." However, prior art teaches a binary counter for counting pulses but fails to teach the pulse group duration time measurement unit to measure the pulse group duration time of the pulse groups and output "low" or "high" voltage levels according to the difference of the duration time of the pulse groups for expressing the binary digits "0" or "1." 1. The distinct features have been added to the dependent claim 12, therefore, rendering them allowable.

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gerstenberg (5,495,209) discloses a typical pulse train in figure 2. DuBrul (4,025,917) discloses an amplitude modulation; there are six peaks or two peaks, representing binary 1 or binary 0, respectively. Covington et al. (4,314, 371)

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disclose the manner of coding is to select a group of pulses such as 6 for a logical 1 and a group of pulses such as 12 for a logical zero.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julia P. Tu whose telephone number is 571-270-1087.

The examiner can normally be reached on 7:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

J.T.  
10-24-2006

  
CHIEH M. FAN  
SUPERVISORY PATENT EXAMINER